

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
14 December 2000 (14.12.2000)

PCT

(10) International Publication Number

WO 00/75365 A3

(51) International Patent Classification⁷: G01N 33/50. (74) Agent: VIKSNINS, Ann, S.; Schwegman, Lundberg, 33/569, A61K 38/55, 48/00, C12N 15/86 Woessner & Kluth, P.O. Box 2938, Minneapolis, MN 55402 (US).

(21) International Application Number: PCT/US00/15700

(22) International Filing Date: 8 June 2000 (08.06.2000)

(81) Designated States (national): AE, AG, AL, AM, AT, AU,

(25) Filing Language: English

AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE,

(26) Publication Language: English

DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU,

(30) Priority Data:

60/138,188 8 June 1999 (08.06.1999) US

ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,

60/201,089 2 May 2000 (02.05.2000) US

LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ,

(71) Applicant (for all designated States except US): UNIVERSITY OF IOWA RESEARCH FOUNDATION [US/US]; 100 Oakdale Campus, #214 TIC, Iowa City, IA 52242-5000 (US).

PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,

TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM,

(71) Applicants and
(72) Inventors: ENGELHARDT, John, F. [US/US]; 8 Laredo Court, Iowa City, IA 52246 (US). DUAN, Dongsheng [CN/US]; Apartment B6, 625 Emerald Street, Iowa City, IA 52246 (US).

KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG,

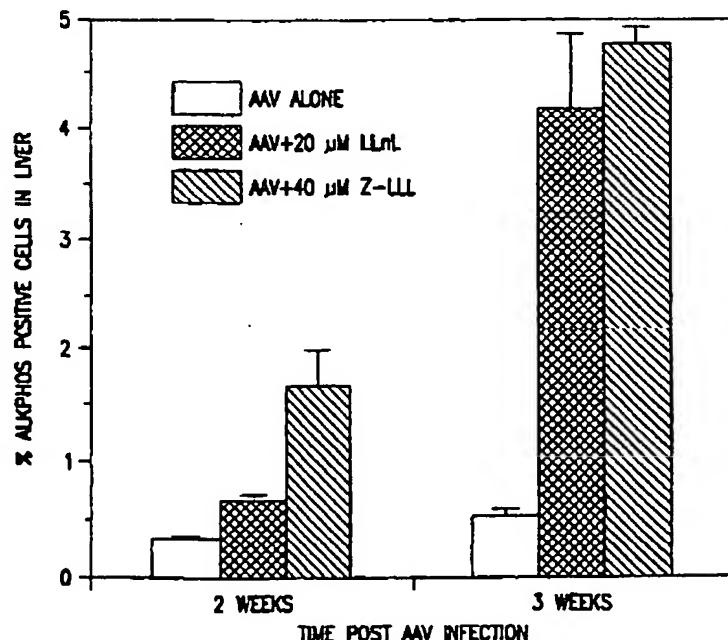
CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

- With international search report.
- Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

[Continued on next page]

(54) Title: COMPOUNDS AND METHODS TO ENHANCE rAAV TRANSDUCTION



WO 00/75365 A3

(57) Abstract: Agents and methods to alter rAAV transduction are provided.



(88) Date of publication of the international search report:

1 March 2001

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/15700

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01N33/50 G01N33/569 A61K38/55 A61K48/00 C12N15/86

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G01N A61K C12N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>KAPLAN JOHANNE M ET AL: "Potentiation of gene transfer to the mouse lung by complexes of adenovirus vector and polycations improves therapeutic potential." HUMAN GENE THERAPY, vol. 9, no. 10, 1 July 1998 (1998-07-01), pages 1469-1479, XP000972242 ISSN: 1043-0342 the whole document</p> <p>---</p> <p style="text-align: center;">-/-</p>	1, 2, 4-6, 9-27

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

1 December 2000

Date of mailing of the international search report

21/12/2000

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patenttaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Hart-Davis, J

INTERNATIONAL SEARCH REPORT

Int'l. Appl. No.
PCT/US 00/15700

C(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FASBENDER AL ET AL: "Complexes of adenovirus with polycationic polymers and cationic lipids increase the efficiency of gene transfer in vitro and in vivo." JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 272, no. 10, 1997, pages 6479-6489, XP002154338 ISSN: 0021-9258 page 6482; figure 4 ---	1,2,4-6, 9-27
A	TERAMOTO S ET AL: "Factors influencing adeno-associated virus-mediated gene transfer to human cystic fibrosis airway epithelial cells: Comparison with adenovirus vectors." JOURNAL OF VIROLOGY, vol. 72, no. 11, November 1998 (1998-11), pages 8904-8912, XP002154339 ISSN: 0022-538X cited in the application the whole document ---	1-12
E	WO 00 47220 A (KENTEN JOHN H ;PROTEINIX INC (US); LEBOWITZ MICHAEL S (US); ROBERT) 17 August 2000 (2000-08-17) page 63, paragraph 2 -page 64, paragraph 1 ---	79-81
A	DIETRICH CORNELIA ET AL: "P53-dependent cell cycle arrest induced by N-acetyl-L-leucinyl-L-leucinyl-L-norleucinal in platelet-derived growth factor-stimulated human fibroblasts." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES, vol. 93, no. 20, 1996, pages 10815-10819, XP002154340 1996 ISSN: 0027-8424 the whole document ---	1,29-46
P,X	BARTLETT JEFFREY S ET AL: "Infectious entry pathway of adeno-associated virus and adeno-associated virus vectors." JOURNAL OF VIROLOGY, vol. 74, no. 6, March 2000 (2000-03), pages 2777-2785, XP002154341 ISSN: 0022-538X page 2780, column 2, paragraph 2 -page 2781, column 1, paragraph 1 ---	1-4, 10-28
P,A	WO 95 15384 A (JOHNSON DAVID C ;YORK IAN A (CA)) 8 June 1995 (1995-06-08) the whole document ---	29,37, 47,63, 79,81,83
A	WO 95 15384 A (JOHNSON DAVID C ;YORK IAN A (CA)) 8 June 1995 (1995-06-08) the whole document ---	1-28

-/-

INTERNATIONAL SEARCH REPORT

International Application No	
PCT/US 00/15700	

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	<p>DUAN DONGSHENG ET AL: "Dynamin is required for recombinant adeno-associated virus type 2 infection." JOURNAL OF VIROLOGY, vol. 73, no. 12, December 1999 (1999-12), pages 10371-10376, XP002154342 ISSN: 0022-538X the whole document</p> <p>-----</p>	1-12
P,A	<p>LIANG E ET AL: "Oligonucleotide delivery: A cellular prospective." PHARMAZIE, vol. 54, no. 8, August 1999 (1999-08), pages 559-566, XP000965598 ISSN: 0031-7144 page 562, column 1</p> <p>-----</p>	1-6,9-28

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/15700

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 0047220	A	17-08-2000		NONE
WO 9515384	A	08-06-1995	US 5750398 A	12-05-1998
			AU 690601 B	30-04-1998
			AU 1061195 A	19-06-1995
			CA 2177699 A	08-06-1995
			EP 0731839 A	18-09-1996
			JP 9506252 T	24-06-1997
			US 5858376 A	12-01-1999